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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/627,325	Applicant(s) KEITH-HILL, RODERIC M.	
	Examiner Kimberly Lovel	Art Unit 2167	

– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-56 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-56 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 7/24/2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>10/24/03 1/12/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Status

1. Claims 1-56 are pending.
2. Claims 1-56 are rejected.

Priority

3. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

4. The abstract of the disclosure is objected to because it includes the terms "said entities" (lines 6 and 12); "said database" (lines 7-8 and 13-14); "said comparison differences" (line 15); and "said corresponding data classes" (line 16).

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied,

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such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 101

5. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

6. Claims 1-49, 51 and 54 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claim 1 recites a method for comparing two databases. In order for the method to represent tangible subject matter, it must be useful, concrete and tangible. The method is both useful and concrete, however, it is not tangible. The end result of the method is identifying differences between corresponding entities. The process of identification does not produce a tangible result. Claims 2-49 are dependent on the method of claim 1 and therefore are also rejected.

Claim 51 recites a comparator comprising of three modules. According to the specification, the comparator is software per se (see field of invention). Software per se is considered to be non-statutory subject matter. Claim 54 is dependent on claim 51 and therefore is also rejected.

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Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 1-4, 6-13 and 49-54 are rejected under 35 U.S.C. 102(e) as being anticipated by US PGPub 2003/0018616 to Wilbanks et al (hereafter Wilbanks et al).

Claim 1:

Referring to claim 1, Wilbanks et al disclose a method of comparing first and second databases that are each comprised of a plurality of entities having one or more characteristics (see abstract; paragraph [0042], lines 3-5; paragraph [0048], lines 3-7; paragraph [0049], lines 1-3; and Fig 2), said entities being grouped into a plurality of data classes in each said database each representative of a particular entity type (see paragraphs [0102-0103] – entity category is considered to represent entity class), the method comprising:

(i) for each said data class of said first and second databases, compiling a list representative of the entities occurring within that class and any attributes for each said entity (see paragraph [0061]; paragraph [0077]; paragraph [0129]; and

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paragraph [0130], lines 5-6 – a plurality of entities in the data structure are established; the entities can then be grouped);

(ii) identifying and comparing corresponding data classes for each of said first and second databases (see paragraph [0105]; paragraph [0106]; and paragraph [0141], lines 6-8); and

(iii) identifying on the basis of said comparison differences between corresponding entities of said corresponding data classes (see paragraph [0070] – identifying whether the record has been updated or deleted in the new version of the database is considered to represent identifying a difference between the two databases).

Claim 50:

Wilbanks et al also disclose a storage medium encoded with machine readable program code for comparing first and second databases (see paragraphs [0036]-[0038]). Therefore, the storage medium of claim 50 is rejected on the same grounds as the method of claim 50.

Claim 51:

Wilbanks et al also discloses a modules for comparing two databases (see paragraphs [0036]-[0038]). Therefore, the comparator of claim 51 is rejected on the same grounds as the method of claim 1.

Claim 2:

Referring to claim 2, Wilbanks et al disclose a method according to claim 1, wherein said first and second databases are relational databases (see paragraph [0049], lines 15-26 and paragraph [0079], lines 1-3).

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Claim 3:

Referring to claim 3, Wilbanks et al disclose a method according to claim 2, wherein each structure of said first and second databases may be described by means of a schema (see paragraph [0028]; Fig 12; and paragraph [0085], lines 1-6).

Claim 4:

Referring to claim 4, Wilbanks et al disclose a method according to claim 3, wherein said first and second databases conform to substantially the same schema (see paragraph [0070], lines 1-5 – the new database which represents an updated version of one of the plurality of databases already contained in the data structure is considered to be the second database with the same schema as the first database but with a updated new version; the database already contained in the data structure is considered to represent the first database with the original schema with an old version format; even though the two databases conform to different versions, they still have the same schema).

Claim 6:

Referring to claim 6, Wilbanks et al disclose a method according to claim 3, wherein said first and second schema conform to different versions of the same schema (see paragraph [0070], lines 1-5 – the new database which represents an updated version of one of the plurality of databases already contained in the data structure is considered to be the second database with the second schema; the database already contained in the data structure is considered to represent the first database with the first schema).

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Claim 7:

Referring to claim 7, Wilbanks et al discloses a method according to claim 1, wherein said first and second databases are capable of being represented in XML file format (see paragraph [0073], lines 4-9; paragraph [0105], lines 1-8; and Fig 13).

Claim 8:

Referring to claim 8, Wilbanks et al disclose a method according to claim 1, wherein said identifying step additionally comprises identifying entities that have been added to one or other of said first and second databases (see paragraph [0070]).

Claim 9:

Referring to claim 9, Wilbanks et al discloses a method according to claim 1, wherein said identifying step additionally comprises identifying entities that have been deleted from one or other of said first and second databases (see paragraph [0070], lines 5-13).

Claim 10:

Referring to claim 11, Wilbanks et al disclose a method according to claim 1, wherein said differences between entities include one or more of:

(a) the absence of a value of a said entity characteristic in one entity of corresponding entities in said first and second databases (see paragraph [0070]);

(b) a modification of a value of a said entity characteristic in one entity of corresponding entities in said first and second databases (see paragraph [0070]).

Claim 11:

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Referring to claim 11, Wilbanks et al disclose a method according to claim 1, comprising the additional step--in circumstances where said databases conform to an identical schema or different versions of a schema--of automatically detecting the identity of said schema (see paragraph [0071], lines 1-8 – a data structure is considered to represent a schema; the state of the schema is considered to represent the identity of the schema).

Claim 12:

Referring to claim 12, Wilbanks et al disclose a method according to claim 1, wherein said compiling step includes the steps of reviewing said databases for characters with an encoding incompatible with the parser, and translating any such character to an equivalent character with compatible encoding (see paragraphs [0105] and [0106] – non-XML documents are converted to XML documents; the process of reading the XML document is considered to represent parsing).

Claim 13:

Referring to claim 13, Wilbanks et al disclose a method according to claim 1, wherein said compiling step includes the step of parsing each of said first and second databases (see paragraph [0106], line 3 - the process of reading the XML document is considered to represent parsing).

Claim 49:

Referring to claim 49, Wilbanks et al disclose a computer program comprising one or more software portions which, when executed in an execution

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environment, are operable to perform the method steps set out in claim 1 (see paragraph [0036]).

Claim 52:

Referring to claim 52, Wilbanks et al disclose a comparator according to, claim 51, implemented in hardware (see paragraphs [0036]-[0038]).

Claim 53:

A comparator according to claim 51, wherein said hardware comprises an application specific integrated circuit (see paragraphs [0036]-[0038]).

Claim 54:

A comparator according to claim 51, implemented in software (see paragraphs [0036]-[0038]).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 5 and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over US PGPub 2003/0018616 to Wilbanks et al as applied respectively to claims 3 and 13 above, and further in view of US Patent No 6,061,515 issued to Chang et al (hereafter Chang et al).

Claim 5:

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Wilbanks et al disclose a method wherein each structure of said first and second database may be described by means of a schema. However, Wilbanks et al do not explicitly teach the further limitation of the databases conforming to different schemas. Chang et al teach a similar method, including the further limitation of the databases.

In particular, Chang et al disclose a method according to claim 3, wherein said first and second databases conform to different schemas (see abstract – one schema can be object-oriented and another schema can be a data store schema).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Chang et al's concept of different schemas with Wilbanks et al's concept of describing a first and second database by means of a schema. One would have been motivated to do so since both Chang et al and Wilbanks et al are directed towards the same field of endeavor of database design and also since the application of different schemas will aid in integrating new types of data (Wilbanks et al: see paragraph [0005], lines 5-7).

Claim 14:

Wilbanks et al disclose a method of the compiling step of claim 1 including the step of parsing each of the first and second databases. However, Wilbanks et al do not explicitly teach the further limitation of the parsing step comprising of instantiating an object class of appropriate type for each entity. Chang et al teach a method similar to that of Wilbanks et al (see Fig 1, item 240 and column 7, lines 38 – column 8, line 19) including the further limitation.

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In particular, Chang et al disclose a method similar to that of claim 13, wherein said parsing step comprises instantiating an object class of appropriate type for each entity (see column 5, lines 15-18 and column 10, line 10).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Chang et al's concept of instantiating an object class as a subcomponent to Wilbanks et al's concept of parsing the databases. One would have been motivated to do so since both Chang et al and Wilbanks et al are directed towards the same field of endeavor of database design and are geared towards solving the problem of defining entity-relationship models (Wilbanks et al: see abstract).

Claim 15:

Referring to claim 15, the combination of Wilbanks et al and Chang et al (hereafter Wilbanks/Chang) discloses a method according to claim 14, wherein an object is instantiated for each entity of said first and second databases (see column 9, lines 44-45).

Claim 16:

Referring to claim 16, Wilbanks/Chang discloses a method according to claim 15, wherein the list compiled for said first database includes entities of said first database, and the list compiled for said second database includes entities of said second database (Wilbanks et al: see paragraph [0061]; paragraph [0077]; paragraph [0129]; and paragraph [0130], lines 5-6 – a plurality of entities in the data structure are established; the entities can then be grouped).

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11. Claims 17-19 and 55-56 are rejected under 35 U.S.C. 103(a) as being unpatentable over US PGPub 2003/0018616 to Wilbanks et al in view of US Patent No 6,061,515 issued to Chang et al as applied to claim 15 above, and further in view of US Patent No 5,806,062 issued to Chen et al (hereafter Chen et al).

Claim 17:

As mentioned above, the combination of Wilbanks et al and Chang et al (Wilbanks/Chang) discloses a method wherein an object is instantiated for each entity of the databases. However, Wilbanks/Chang does not explicitly teach the further limitation of instantiating a difference object. Chen et al teaches a method similar to that of Wilbanks/Chang, including the further limitation of a difference object.

In particular, Chen et al disclose a method similar to that of claim 15, wherein said identifying and comparing step includes a step of instantiating a difference object for each entity listed in one of the lists for said first and second databases (see column 9, lines 46-62).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Chen et al's method of instantiating difference object as an added feature to Wilbanks/Chang's method of instantiating objects. One would have been motivated to do so since both Wilbanks/Chang and Chen et al focus on the field of endeavor of entity-relationship analysis (Wilbanks et al: see abstract, lines 1-4; Chen et al: see column 5, lines 47-48).

Claim 18:

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Referring to claim 18, the combination of Wilbanks/Chang and Chen et al (hereafter Wilbanks/Chang/Chen) discloses a method according to claim 17, further comprising the step of populating each said difference object with a reference to the corresponding entity object in said one list (Chen et al: see column 9, lines 46-62).

Claim 19:

Referring to claim 19, Wilbanks/Chang/Chen discloses a method according to claim 18, wherein for speed and efficiency of later searching, a reference to each said entity object is created in a hash keyed by object identity (Chen et al: see column 9, lines 46-62).

Claim 55:

Wilbanks et al disclose a computer readable medium for comparing two different versions of a database.

In particular, Wilbanks et al disclose a storage medium encoded with machine readable computer program code for comparing a first older database and a second newer database each conforming to different versions of a database structure schema (see paragraph [0070], lines 1-5 – the new database which represents an updated version of one of the plurality of databases already contained in the data structure is considered to be the second database with the second schema; the database already contained in the data structure is considered to represent the first database with the first schema) said first and second databases each being comprised of a plurality of entities having one or

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more characteristics (Wilbanks et al: see abstract; paragraph [0042], lines 3-5; paragraph [0048], lines 3-7; paragraph [0049], lines 1-3; and Fig 2);

wherein, when the computer program code is executed by a computer (see paragraphs [0036]-[0038]), the computer performs the steps of:

(i) automatically generating object-orientated data structures from schema objects relating to said schema versions;

(ii) parsing said first and second databases (see paragraph [0106], line 3 – the process of reading the XML document is considered to represent parsing);

(iii) populating instances of said data structures with instances of the appropriate entities for each said database;

(iv) generating lists of entities for each entity type instanced in the said data structures for each said database (see paragraph [0061]; paragraph [0077], paragraph [0129]; and paragraph [0130], lines 5-6);

(v) pairing corresponding entities in said lists (see paragraph [0061]; paragraph [0077]; paragraph [0129]; and paragraph [0130], lines 5-6);

(vi) populating a third instance of said data structures with instances of appropriate difference entity types;

(vii) storing in said difference entity types and hence in said third data structure the results of said pairing;

(viii) scanning said results of said pairing to determine which entities in said first database have been deleted, which entities in said

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second database have been inserted, and which entities are common to said first and second databases;

(ix) comparing characteristics of said common entities to determine which of the said common entities have been modified and which remain unmodified; and

(x) reporting said deletions, insertions, modifications, non-modifications and results of said characteristic comparisons.

However, Wilbanks et al do not teach the further limitations items (i), (iii), (vi)-(x). Chang et al disclose a method similar to that of Wilbanks et al, including the further limitations of items (i) and (iii). In particular, Chang et al disclose

(i) automatically generating object-orientated data structures from schema objects relating to said schema versions (Chang et al: see column 5, lines 15-18 and column 10, line 10);

(iii) populating instances of said data structures with instances of the appropriate entities for each said database (Chang et al: see column 5, lines 15-18 and column 10, line 10);

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Chang et al's concept of generating object-oriented data structures and populating the instances of data structures with Wilbanks et al's method for comparing two databases. One would have been motivated to do so since both Chang et al and Wilbanks et al are directed towards the same field of endeavor of database design and also since the application of different

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schemas will aid in integrating new types of data (Wilbanks et al: see paragraph [0005], lines 5-7).

However, Wilbanks/Chang fail to teach the further limitation of items (vi)-(x). Chen et al teach a method similar to that of Wilbanks/Chang, including the further limitations. In particular, Chen et al disclose

(vi) populating a third instance of said data structures with instances of appropriate difference entity types (Chen et al: see column 9, lines 46-62);

(vii) storing in said difference entity types and hence in said third data structure the results of said pairing (Chen et al: see column 9, lines 46-62);

(viii) scanning said results of said pairing to determine which entities in said first database have been deleted, which entities in said second database have been inserted, and which entities are common to said first and second databases (Chen et al: see column 12, line 11 – column 13, line 41);

(ix) comparing characteristics of said common entities to determine which of the said common entities have been modified and which remain unmodified (Chen et al: see column 12, line 11 – column 13, line 41); and

(x) reporting said deletions, insertions, modifications, non-modifications and results of said characteristic comparisons (Chen et al: see column 12, line 11 – column 14, line 38).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Chen et al's method of instantiating difference object and generating a report as added features to Wilbanks/Chang's method of instantiating objects. One would have been motivated to do so since both

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Wilbanks/Chang and Chen et al focus on the field of endeavor of entity-relationship analysis (Wilbanks et al: see abstract, lines 1-4; Chen et al: see column 5, lines 47-48).

Claim 56:

The method of claim 56 is rejected on the same grounds as the computer readable medium of claim 55.

12. Claims 20-35 and 47-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over US PGPub 2003/0018616 to Wilbanks et al in view of US Patent No 6,061,515 issued to Chang et al in view of US Patent No 5,806,062 issued to Chen et al as applied to claim 18 above, and further in view of US Patent No. 6,434,558 issued to MacLeod et al (hereafter MacLeod et al).

Claim 20:

The combination of Wilbanks/Chang and Chen et al (Wilbanks/Chang/Chen) disclose a method comprising the step of populating difference objects with a reference to a corresponding entity object. However, Wilbanks/Chang/Chen fail to explicitly teach the further limitation of computing lineages. MacLeod et al disclose a method similar to that of Wilbanks/Chang/Chen, including the further limitation.

In particular, MacLeod et al disclose a method similar to that of claim 18, comprising the step of computing a lineage (recursive parenthood) for each said entity object in said one list (see column 1, line 3 – column 2, line 4).

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It would have been obvious to one of ordinary skill in the art at the time the invention was made to MacLeod et al's method of computing lineages as the next component for populating each difference object. One would have been motivated to do so in order to be able to accurately compare the two databases (Chen et al: see abstract).

Claim 21:

Referring to claim 21, the combination of Wilbanks/Chang/Chen and MacLeod et al (hereafter Wilbanks/Chang/Chen/MacLeod) discloses a method according to claim 20, comprising storing said computed lineages in a lineage list (MacLeod et al: see column 7, lines 37-53 and lines 61-63).

Claim 22:

Referring to claim 22, Wilbanks/Chang/Chen/MacLeod discloses a method according to claim 21, wherein for speed and efficiency of later searching, a reference to said difference object is saved in a hash keyed by lineage (MacLeod et al: see column 5, lines 31-34 and column 7, lines 37-53 – according to the *Fifth Edition of the Microsoft Computer Dictionary*, definition of a hash search states that hash searches are highly efficient because the hashing enables direct or almost direct access to the target element).

Claim 23:

Referring to claim 23, Wilbanks/Chang/Chen/MacLeod discloses a method according to claim 22, further comprising computing a lineage (recursive parenthood) for each entity of said other of the lists for said first and second

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databases (MacLeod et al: see column 1, line 3 – column 2, line 4 – the lineages for each list can be computed in the same manner as for the first list).

Claim 24:

Referring to claim 24, Wilbanks/Chang/Chen/MacLeod discloses a method according to claim 23, wherein said comparing step includes comparing the computed lineages for each entity of said other of the lists with the lineages computed for the entities in said one list (MacLeod et al: see column 7, line 34 – column 8, line 13).

Claim 25:

Referring to claim 25, Wilbanks/Chang/Chen/MacLeod discloses a method according to claim 24, wherein in the event of a match between a computed lineage for an entity of said other of the lists and a lineage computed for an entity in said one list, a potential entity match is determined to have occurred (MacLeod et al: see column 7, line 34 – column 8, line 13).

Claim 26:

Referring to claim 26, Wilbanks/Chang/Chen/MacLeod discloses a method according to claim 25, wherein in the event of a potential entity match occurring, a unique identifier for each potentially matching entity is retrieved and compared, and an actual match is determined to have occurred if the unique identifiers should be determined to match (MacLeod et al: see column 7, line 34 – column 8, line 13).

Claim 27:

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Referring to claim 27, Wilbanks/Chang/Chen/MacLeod discloses a method according to claim 26, wherein in the event of an actual match occurring, the difference object corresponding to the matched entity referenced in said one list is populated with a reference to the matched entity referenced in said other list (MacLeod et al: see column 9, lines 46-62).

Claim 28:

Referring to claim 28, Wilbanks/Chang/Chen/MacLeod discloses a method according to claim 26, wherein in the event of an actual match not occurring, a difference object is instantiated for said unmatched entity in said other list (MacLeod et al: see column 9, lines 46-62).

Claim 29:

Referring to claim 29, Wilbanks/Chang/Chen/MacLeod discloses a method according to claim 28, wherein said difference object is populated with a reference to said unmatched entity from said other list (MacLeod et al: see column 9, lines 46-62).

Claim 30:

Referring to claim 30, Wilbanks/Chang/Chen/MacLeod discloses a method according to claim 29, wherein for speed and efficiency of later searching, a reference to said difference object is saved in said hash keyed by lineage (MacLeod et al: see column 5, lines 31-34 and column 7, lines 37-53 – according to the *Fifth Edition of the Microsoft Computer Dictionary*, definition of a hash search states that hash searches are highly efficient because the hashing enables direct or almost direct access to the target element).

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Claim 31:

Referring to claim 31, the combination of Wilbanks/Chang/Chen/MacLeod discloses a method according to claim 29, wherein said identifying step includes inspecting each said difference object for definition of the entity object or objects referenced therein (Chen et al: see column 6, lines 36-67).

Claim 32:

Referring to claim 32, Wilbanks/Chang/Chen/MacLeod disclose a method according to claim 31, further comprising the step of determining an entity addition or deletion, as appropriate, to have occurred on identification of a said difference object with a single reference to an entity object (Chen et al: see column 9, lines 58-60).

Claim 33:

Referring to claim 33, Wilbanks/Chang/Chen/MacLeod disclose a method according to claim 31, wherein said identifying step includes in circumstances where a said difference object includes a reference to two entity objects, retrieving and comparing each characteristic of said entity objects (Chen et al: see column 10, line 53 – column 11, line 3).

Claim 34:

Referring to claim 34, Wilbanks/Chang/Chen/MacLeod disclose a method according to claim 33, further comprising the step of reporting, as differences, modifications, additions and/or deletions of characteristics of said two entities (Chen et al: see column 12, line 11 – column 13, line 41).

Claim 35:

Referring to claim 35, Wilbanks/Chang/Chen/MacLeod disclose a method according to claim 34, further comprising reporting, in the case of a modification, the characteristic of each of said two entities (Chen et al: see column 12, line 11 – column 14, line 38).

Claim 47:

Referring to claim 47, Wilbanks/Chang/Chen/MacLeod disclose A method according to claim 26, wherein said comparing step employs fuzzy matching to permit automated pairing of entities of identical type but of only similar attribute values (Chen et al: see column 12, line 11 – column 14, line 38).

Claim 48:

Referring to claim 48, Wilbanks/Chang/Chen/MacLeod disclose a method according to claim 47, wherein the extent of fuzzy matching permitted is user selectable (Chen et al: see column 12, line 11 – column 14, line 38).

13. Claims 36-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over over US PGPub 2003/0018616 to Wilbanks et al as applied to claim 1 above, and further in view of US Patent No. 6,826,566 issued to Lewak et al (hereafter Lewak et al).

Claim 36:

Wilbanks et al disclose a method of comparing a first and second database that each comprise of a plurality of entities. However, Wilbanks et al do not explicitly teach the further limitation of presenting options to the user concerning the manner in which the first and second databases are to be

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compared. Lewak et al teach a method similar to that of Wilbanks including the further limitation of user options.

In particular, Lewak et al disclose a method similar to that of claim 1, further comprising the step of presenting options to a user concerning the manner in which the first and second databases are to be compared (see abstract, lines 10-17).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add Lewak et al's user interface as a top layer of Wilbank et al's method for comparing a first and second database. One would have been motivated to do so to solve the existing data mining problems when dealing with data integration (Wilbanks et al: see paragraph [0005]).

Claim 37:

Referring to claim 37, the combination of Wilbanks et al and Lewak et al (hereafter Wilbanks/Lewak) discloses a method according to claim 36, wherein said user is capable of choosing one of a number of identifiers for subsequent use in entity matching (Lewak et al: see Fig 4 – the ItemSelectors are considered to represent an identifier for matching two data sources) .

Claim 38:

Referring to claim 38, Wilbanks/Lewak discloses a method according to claim 37, wherein said identifiers comprise for each said entity one or more of: a name, a serial number by entity type (table key), or a globally unique identifier (GUID) (Lewak et al: see Fig 4, item 414 – Item Listing is considered to be comparable to entity listing; the names of each item are located in the list).

Claim 39:

Referring to claim 39, Wilbanks/Lewak discloses a method according to claim 38, wherein said options are provided to said user by means of a graphical user interface or a configurable XML file (Lewak et al: see Fig 1, item 102 – graphical user interface).

Claim 40:

Referring to claim 40, Wilbanks/Lewak discloses a method according to claim 39, wherein said user is also capable of selecting which entity types and characteristics are compared (Lewak et al: see Fig 5).

Claim 41:

Referring to claim 41, Wilbanks/Lewak discloses a method according to claim 39, wherein said user is capable of limiting comparison to specified parts of each of said first and second databases (Lewak et al: see Fig 5).

Claim 42:

Referring to claim 42, Wilbanks/Lewak discloses a method according to claim 39, wherein a user's option selections are accepted via a parsable configuration file in XML format (Lewak et al: see column 21, lines 59-63; and column 72, line 51 – column 73, line 60).

Claim 43:

Referring to claim 43, Wilbanks/Lewak discloses a method according to claim 42, wherein GUI-modified options can be stored in a parsable configuration file in XML format (Lewak et al: see column 21, lines 59-63; and column 72, line 51 – column 73, line 60).

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Claim 44:

Referring to claim 44, Wilbanks/Lewak discloses a method according to claim 43, wherein said options are instantiated as configuration objects (Lewak et al: see column 21, lines 59-63; and column 72, line 51 – column 73, line 60).

14. Claims 45-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over US PGPub 2003/0018616 to Wilbanks et al as applied to claim 1 above, and further in view of US Patent No 5,806,062 issued to Chen et al.

Claim 45:

Wilbanks et al disclose a method for comparing two databases. However, Wilbanks et al do not explicitly teach the further limitation of a report automatically being generated. Chen et al teach the further limitation.

In particular, Chen et al disclose a method similar to that of claim 1, further comprising the step of automatically generating a report of any identified differences (see column 12, line 11 – column 14, line 38).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Chen et al's method of generating a report identifying differences of the databases as an added feature to Wilbanks/Chang's method of comparing two databases. One would have been motivated to do so in order to be able to visualize the results of the comparison and also since both Wilbanks et al and Chen et al focus on entity-relationship analysis (Wilbanks et al: see abstract, lines 1-4; Chen et al: see column 5, lines 47-48).

Claim 46:

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Referring to claim 46, the combination of Wilbanks et al and Chen et al discloses a method according to claim 45, wherein said report can be generated in one or more of a plurality of file formats, each being selectable by a user (Chen et al: see column 13, lines 24-42).

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- US Patent No 6,374,256 issued to Ng et al which discloses mapping from an object-oriented environment to a table
- US Patent No 6,085,198 issued to Skinner et al which discloses mapping from an object-oriented environment to a table
- US Patent No 6,457,006 issued to Gruenwald which discloses a difference operation

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kimberly Lovel whose telephone number is (571) 272-2750. The examiner can normally be reached on M-F from 8:00 to 3:30.

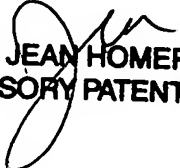
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jean Homere, can be reached on (571) 272-3780. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kimberly Lovel
Examiner
Art Unit 2167

kml
03 February 2006


JEAN HOMERE
SUPERVISORY PATENT EXAMINER